



Can a post-harvest ripening treatment extend the longevity of *Rhododendron* L. seeds?

Fiona Hay^{*}, Jennifer Klin, Robin Probert

Seed Conservation Department, Royal Botanic Gardens Kew, Wakehurst Place, Ardingly, West Sussex RH17 6TN, UK

Received 26 May 2006; received in revised form 8 September 2006; accepted 8 September 2006

Abstract

Pre-dehiscent capsules were collected from two *Rhododendron griersonianum* (Bali f. & Forrest) trees and either immediately dried in a dry-room (15% relative humidity, 15 °C) or placed in a high humidity room (80% relative humidity, 15 °C) for 30, 60, or 90 d. Further capsules were also collected from the trees at 30 and 60 d, but seeds had been dispersed by 90 d. Seed ageing experiments (60% relative humidity, 45 °C) carried out on these seed-lots and on seeds from a further 10 *Rhododendron* species confirmed that short seed lifespans is a trait of the genus, with a mean P_{50} value of ca. 20 d for this storage environment.

Placing the pre-dehiscent capsules at high humidity allowed some continuation of maturation, but the longevity of these seeds was never as good as seeds collected from the plants after the same maturation period and had declined by 90 d, suggesting that 80% RH and 15 °C does not mimic the natural drying rate that the seeds would have experienced *in situ* and that, despite the high RH irreparable ageing commenced.

The results emphasise the importance of maintaining a good storage environment for *Rhododendron* seed collections which are likely to be short-lived compared with species from other families and/or genera and the importance of collecting seeds as close as possible to the point of natural dispersal.

©2006 Elsevier B.V. All rights reserved.

Keywords: *Rhododendron* spp; Seed longevity; Post-harvest ripening

1. Introduction

The *Rhododendron* (L.) genus (first species named in 1753), family Ericaceae, is mainly native to the Northern Hemisphere (Cox and Cox, 1997; Blazich and Rowe, 2003). The word *Rhododendron* comes from the Greek meaning "rose tree" (van Gelderen et al., 1992). They are hardy, evergreen, broad-leaved trees which require moist but well drained acidic soils and some shade. First introduced into cultivation in 1656, they now have significant horticultural value and there are well over 900 listed *Rhododendron* species as well as numerous hybrids (Postan, 1996; Vetaas, 2002).

Rhododendron fruits consist of oblong, five-valved, dehiscent capsules that begin to ripen in autumn. The capsules turn from green to brown and split along the sides when ripe (Blazich and Rowe, 2003). Each inflorescence can produce as many as 5000 seeds. The seeds are very small, typically

2–3 mm including testa, and easily dispersed by the wind. They also exhibit orthodox storage behaviour and are non-dormant, germinating shortly after sowing (Cross, 1981; Pastan, 1996; Blazich and Rowe, 2003). However they do appear to be relatively short-lived in dry-storage. In a comparative longevity screen of more than 150 species from 55 plant families carried out in our laboratory, 2 *Rhododendron* species, *R. campanulatum* (D. Don.) and *R. micranthum* (Maxim.), were amongst the 15 shortest-lived species. Rouse and Williams (1986),

We are unable to supply this entire article because the publisher requires payment of a copyright fee. You may be able to obtain a copy from your local library, or from various commercial document delivery services.

^{*} Corresponding author. Tel.: +44 1444 894161; fax: +44 1444 894110.
E-mail address: f.hay@kew.org (F. Hay).